The importance of Yapunyah *Eucalyptus ochrophloia* as a food source for the Pied Honeyeater *Certhionyx variegatus* in Far West New South Wales

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The Pied Honeyeater *Certhionyx variegatus* is listed as a Vulnerable Species under Schedule 2 of the New South Wales (NSW) *Threatened Species Conservation Act 1995*. Nationally, the species distribution is noted as widespread throughout arid and semi-arid Australia but is nomadic and irregularly seen (Ayers *et al.* 1996). Within NSW, the Pied Honeyeater is noted as occurring irregularly throughout its range with movements usually described as nomadic (Morris *et al.* 1981). Birds Australia sighting records from 1998-2002 differentiated by season show that Pied Honeyeater sightings increase in far west NSW in winter, and central west NSW during spring. Very few records were made of this species in NSW over autumn and summer (Barrett *et al.* 2003). Most likely this is related to flowering sequences of preferred vegetation and rainfall events rather than true seasonality in movements. However, Keast (1968) noted some seasonality in the lower reaches of the Lachlan River where birds arrive early in October and leave late in December after breeding. The known habitats of the Pied Honeyeater are acacia shrub (primarily Mulga), mallee, spinifex and eucalypt woodlands, usually when shrubs are flowering (Ayers *et al.* 1996, Blakers *et al*. 1985, Cooper and McAllan 1995, Saunders and Ingram 1995).

Given the unpredictable nature of the movement and occurrence of Pied Honeyeaters, they are little studied. During surveys in western NSW we encountered a large number of Pied Honeyeaters utilising a previously unreported resource. Here we discuss our observations.

From 12-19 October 2002, a vertebrate fauna survey was conducted on the property "Tiltaweira" in the Western Division of New South Wales. The property had been recently purchased by the Sporting Shooters Association of Australia (SSAA) with the intention of being managed by its Environment and Conservation Branch as a conservatively stocked and conservation oriented enterprise.

Tiltaweira is a 31,102 ha property located approximately 40 km south of Wanaaring on the Wanaaring – Wilcannia Road adjacent to Nocoleche Nature Reserve. Survey effort was differentiated according to the three land systems mapped by the Soil Conservation Service (Walker 1991) as covering the majority of the property (79.1%). Approximately equal time was proportioned to survey effort within each land system. The location of survey sites (Table 1) can be used as type locations for each land system briefly described below (as per Walker 1991). Property conditions at the time of survey were very dry with most of western NSW experiencing drought.

The Paroo Land System is representative of the main and tributary channels of the Paroo River. The soils are typically cracking grey clays and support vegetation such as Yapunyah *Eucalyptus ochrophloia* with scattered pockets of Black Box *E. largiflorens* and Coolibah *E. coolabah.* Understorey trees are commonly River Cooba *Acacia stenophylla* and Eurah *Eremophila bignoniflora.* The main shrub is dense Lignum *Muehlenbeckia florulenta.*

The Womparely Land System is typically low stony tablelands and associated undulating footslopes. Soils are mostly brown gibber soils with the surface covered by a pavement of broken and polished siliceous stone. Vegetation consists of scattered Mulga *Acacia aneura* and Western Bloodwood *Corymbia tumescens.* In the drainage lines there are dense groves of Mulga and small patches of Poplar Box *Eucalyptus populnea.* Understorey and shrubs are typically sparse on the stony tablelands and dense in the drainages. The main species are Punty Bush *Senna* form taxon '*filifolia*' / '*zygophylla*' and Harlequin Fuschia-bush *Eremophila duttonii.*

The Glenhope Land System is characterised by extensive slightly undulating stony plains overlain with sandplains and occasional small drainage flats. The main soil types

Table 1. Extent of each landsystem and location of survey sites for type locality on "Tiltaweira" (as per Walker 1991).

Landsystem	Location (AMG)	Area of property	% of property
Paroo	222800 E; 6677500 N	2 866 ha	9.21
Womparely	215800 E; 6675900 N	17 993 ha	57.85
Glenhope	225000 E; 6674000 N	3 745 ha	12.04

are soft red earths with sandy loam to loamy sand topsoils. Most areas are vegetated by scattered to sparse *Acacia aneura* and Whitewood *Atalaya hemiglauca*. Small pockets of *Eucalyptus largiflorens* may occasionally be found on the drainage flats. Dense stands of inedible woody shrubs characterise the soft red country. The main species are Turpentine *Eremophila sturtii*, *Senna* form taxon '*filifolia*' / '*zygophylla*' and Narrow-leaf Hopbush *Dodonaea viscosa*.

At the time of survey only one species of tree or shrub was observed in flower within the area occupied by the three land systems on the property, that being *Eucalyptus ochrophloia*. Within the property, *E. ochrophloia* only occurred within the Paroo Land System on the banks and floodouts of the Paroo River. Observations made on the remaining unsurveyed land systems did not note any other woody species in blossom.

Pied Honeyeater observations

Over the survey period a total of 194 encounters with Pied Honeyeaters were logged, though some of these were likely to be repeat sightings. Ninety-seven percent of all birds recorded were in the Paroo Land System where they were foraging on the blossoms of *E. ochrophloia* (see Table 2).

The birds spent considerable amounts of time on the ground and within dense *Muehlenbeckia florulenta* clumps, often being seen chasing each other around in the foliage. In the tree canopies, Pied Honeyeaters were sometimes harassed by White-plumed Honeyeaters *Lichenostomus penicillatus* and Yellow-throated Miners *Manorina flavigula*.

Most observations of Pied Honeyeater associations were with birds of its own kind. The species was rarely noted in any mixed flocks on the eucalypt blossom. Individual honeyeaters were characteristically very nervous and were regularly on the move. Individual birds or single pairs were recorded in the larger eremophila shrubs on the Glenhope and Womparley Land Systems. These shrubs were in seed but not in flower. The honeyeaters typically stayed within the shrubs unless disturbed, when they flew into the nearest tree canopy for a short period before descending again further away.

Over all three land systems, flock size varied from 2 – 55 birds, but the species was most commonly encountered in small flocks of 5-7 individuals. Three flocks of over 20 honeyeaters were recorded during the survey period with two of these being in different locations several kilometres apart. We estimated a minimum population size of around 100 individuals on the property at the time of survey.

Table 2. Total number of individuals recorded for each honeyeater species on "Tiltaweira" according to landsystem.

Species	Paroo LS	Womparely LS	Glenhope LS	Total
Spiny-cheeked Honeyeater	126	8	11	145
Acanthagenys rufogularis				
Black Honeyeater	12	0	0	12
Certhionyx niger				
Pied Honeyeater	189	0	5	194
Certhionyx variegatus				
Blue-faced Honeyeater	8	0	0	8
Entomyzon cyanotis				
White-plumed Honeyeater	113	0	0	113
Lichenostomus penicillatus				
Grey-fronted Honeyeater	4	0	0	4
Lichenostomus plumulus				
Singing Honeyeater	29	0	4	33
Lichenostomus virescens				
Brown Honeyeater	14	0	0	14
Lichmera indistincta				
Yellow-throated Miner	136	47	14	197
Manorina flavigula				
Little Fiarbird	13	0	0	13
Philemon citreogularis				
Noisy Friarbird	16	3	1	20
Philemon corniculatus				
White-fronted Honeyeater	15	0	0	15
Phylidonyris albifrons				
Total	**675**	**58**	**35**	**768**
No. species	12	3	5	

Communication with the Department of Environment and Climate Change revealed there are no records of flocks of Pied Honeyeater as large as 50 birds on the Wildlife Atlas of NSW, the main information database holding fauna sighting records for the state of NSW. Information recorded by Birds Australia in their first national bird census (1977-81) also showed no flock sizes of this magnitude, with sightings of single birds, pairs and groups of up to about six (Blakers *et al.*1985). Schodde and Tidemann (1997) stated that Pied Honeyeaters follow erratic flowering through Australia's arid zone in small bands of two to six or eight birds. However, they also add that flushes of local blossom can bring many groups together to breed in one small area. Flock sizes of up to 20 birds have been reported by Morgan *et al.* (1926), with occasional larger flocks of up to 40-50 and even several hundred (Cooper 1991). HANZAB (2001) notes a record of large numbers of Pied Honeyeaters, including flocks of more than 30 recorded around Buronga and Dareton in south-west NSW in September – November 1995, and 'large numbers' in the south-west between September 1999 and February 2000. It seems that this survey has recorded the highest number of Pied Honeyeater observed in north-western NSW in recent years.

Most references state that the species prefers nectar from eremophila flowers, in addition to blossom from hakeas, grevilleas, mistletoes and *Brachysema* shrubs (eg. Ayers *et al.* 1996, Schrader 1981, Robinson *et al.* 1992). The species is also noted to eat the fruit from chenopods and occasional insects (Blakers *et al.* 1985, Schodde and Tidemann 1997). MacGillivray (1910) and Schrader (1981) state that the honeyeater can also be found in blossoming eucalypts. This survey recorded almost all birds utilising eucalypt blossom. It may be that *E. ochrophloia* blossom is a vital food source for this species when the eremophila shrubs are not in flower.

The flush of eucalypt blossom in drought times in western New South Wales was also an important source of nectar (and perhaps insects) for all the other honeyeater species recorded on the property in addition to the Pied Honeyeater. A total of 12 honeyeater species were recorded during the survey period. Such a large aggregation of a highly nomadic species during a drought period suggests resource limitation was the driver for the event. All 12 honeyeater species were recorded in the Paroo Land System compared to three and five species for Womparely and Glenhope Land Systems, respectively. The latter two land systems contained no eucalypts in blossom (see Table 2). Eighty-eight percent of all honeyeater species records were made in the Paroo Land System where *E. ochrophloia* was flowering (see Table 2).

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